

## **Collaboratives, Cooperation, and Private Forest Ownership Patterns: Implications for Voluntary Protection of Biological Diversity**

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The conservation of biological diversity, particularly on landscapes dominated by non-industrial private forests, usually demands explicit recognition of cross-boundary cooperation. This study investigates the spatial challenges faced by stakeholder-driven collaborative processes in achieving participation by landowners individually or collectively. Semi-structured qualitative interviews with 37 landowners, collaborative participants and public employees led to the development of three scenarios from efforts along coastal Oregon to restore endangered Coho salmon. The scenarios illustrate success and failure in achieving conservation activities across multiple ownerships, and the importance of ownership patterns and their purposeful consideration to those outcomes. The findings indicate that the structure of the collaborative, and in particular, issues of representation, affect the accessibility to physical locations in the landscape. In developing or modifying similar collaborative efforts, ensuring access to important landscape features (i.e. critical habitat) must be a primary concern, if direct, voluntary landowner action is needed.

**Keywords:** cross-boundary cooperation, collaborative planning, NIPF owners, landscape management

### **INTRODUCTION**

The conservation of biological diversity usually demands explicit recognition of cross-boundary cooperation. Whether the concern is endangered species habitat (e.g.

for the northern spotted owl) or protection or restoration of rare ecosystems (e.g. oak savannahs), spatial and ecological arrangements are typically not confined to individual ownerships, even large ones that encompass thousands of hectares. When coupled with forest ownership patterns, it is clear that in most parts of the USA, conservation efforts will require some degree of cross-boundary cooperation by non-industrial private forest (NIPF) owners (Brunson 1998, Yaffee 1998). NIPFs are the largest portion of forest ownership nationwide (Smith *et al.* 2001) and the sole location of many endangered resources (National Research Council 1998). The owners of these lands select management tools consistent with their individualistic objectives that collectively define the mosaic of ecosystems attributes that often determine the conservation, restoration, or loss of biological diversity. The purpose of this paper is to illustrate the relationship between ownership patterns and collaborative processes to protect and restore endangered species habitat and the consequences when this relationship does not link those seeking to help endangered species and those that own the land required for that intent.

Efforts to conserve biological diversity often hinge on stakeholder-driven collaboratives that, ideally, seek workable solutions and actions through consensus-based decision-making (Wondolleck and Yaffee 2000). Stakeholders from across the physical, social, economic and political landscape set priorities and formulate strategies to achieve conservation goals. These processes typically include representation by landowning interests in the landscape. For example, watershed councils in Oregon (the focus of this study) include a wide array of ownership categories: ranchers, National Forest managers, farmers, NIPF owners, homeowners and forest industry (Rickenbach 1999). Consensus-based decision-making also constrains the scope of these efforts. By requiring either full or near full agreement by all stakeholders, the scope of activities tends to avoid controversial topics that might adversely affect the interests of one or more stakeholders. In many cases, the lure of financial and technical resources will be tied to these processes and their actions in furtherance of stated policy goals (e.g. endangered species recovery).

The literature surrounding NIPF owners indicates that they are generally supportive of broadly defined management philosophies that include protecting biological diversity (Brunson *et al.* 1996, Rickenbach *et al.* 1998, Fries *et al.* 1998). Adoption, however, does not necessarily or even usually follow positive predispositions (Egan and Jones 1993). Landowners may be skeptical about adopting cooperative approaches (Brunson *et al.* 1996). Concerns over property rights and feelings of 'losing control' are initial hurdles (Yaffee 1998). Institutional and policy arrangements, such as planning hierarchy and incentives, also factor heavily in shaping opinions towards and adoption of collective alternatives (Jumppanen *et al.* 2003, Klosowski *et al.* 2001), as do differing time horizons in planning when long-term outcomes (such as conservation of old-growth forest) are of interest (Kurttila *et al.* 2002). In cases where collaborative processes exist, perceptions of the process and its effectiveness will influence NIPF owners' willingness to cooperate (Rickenbach and Reed 2002). Even the geographic scale at which collaborative processes operate has been identified as a factor in eliciting participation (Cheng *et al.* 2003).

Anecdotal descriptions of cross-boundary cooperation by NIPF owners in the United States dot the literature (e.g. Campbell and Kittredge 1996, Bolen 1996), but these rarely reflect larger public goals such as conserving biological diversity. Even

the current revisitation of landowner cooperatives in the USA with their focus on sustainable forestry and certification is not directly linked to conservation of biological diversity (Barten *et al.* 2001, Kittredge 2003, Rickenbach *et al.*, in review). Through three scenarios that emerged as part of an intense case study of landowner participation in Oregon's plan to restore Coho salmon<sup>1</sup>, this study explores the effects of ownership patterns on achieving cross-boundary cooperation. In particular, these ownership patterns and their purposeful consideration (or lack thereof) directly affected the collaboratives' impact on conserving endangered salmon habitat.

## STUDY CONTEXT

The crisis over a proposed *Endangered Species Act* (ESA) listing of Coho salmon in the Pacific Northwest led the State of Oregon to propose an alternative approach to protecting habitat and recovering the species. A central premise of the State's approach, embodied in The Oregon Plan for Salmon and Watersheds (State of Oregon 1997, 1998), was for local communities to form voluntary collaboratives, called watershed councils that would broadly represent the variety of interests found in a particular watershed (Oregon Revised Statute 541.388). Watershed councils were empowered to foster enhanced stewardship of Oregon's waterways and riparian areas, particularly those owned by farmers, ranchers, the timber industry and NIPF owners who control large areas of important habitat. Watershed councils lack regulatory power; therefore, their efforts centre on initiating collective action by individuals and groups within the watershed toward restoration activities through awareness, coordination, education and, when successful in securing grants, financial incentives<sup>2</sup>. Efforts to restore Coho salmon are inherently multi-scaled: salmon are born and reared in freshwater, spend much of their adult life in the ocean and return to spawn in freshwater. Given their complex life cycle, the factors affecting their decline and restoration transcend local, state, national and international jurisdictions. They also transcend the individual ownerships that are the target of watershed councils. Although the eventual fate of salmon rests on several factors, one will be the degree to which watershed councils facilitate cross-boundary cooperation by NIPF and other owners to improve stream habitat conditions.

Immediately prior to the commencement of this study, Rickenbach (1999) completed a survey of Oregon's 83 watershed councils that came early in their spread across the state. The survey indicated that most councils had completed the basic tasks related to formation. As required by the enabling legislation, 92% had been recognised by local government. Nearly the same 92% had developed a mission statement, drafted bylaws, or both. However, in terms of efforts toward improving the watershed, only 50% had created a watershed action plan – a document often identified as key in setting priorities and acquiring funds. Oregon law requires that councils should have membership that broadly represents those living and working in the watershed, but actual membership is determined at the

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<sup>1</sup> Rickenbach and Reed (2002) discussed specific factors that might foster participation in cross-boundary cooperation.

<sup>2</sup> Funding for watershed councils was not automatic, the councils competing with each other for grants sponsored primarily by state government for restoration activities.

local level. Councils ranged in size from 4 to 27 members with a mean of 13 and a median of 12 members, and membership typically included representation by local government, environmental and conservation groups, forest products firms, private landowners (broadly defined), agricultural producer interests, and state and federal agencies (Rickenbach 1999).

While watershed councils and similar collaboratives are generally making decisions through consensus, nothing in the Oregon statute mandates a particular decision-making style. Over half of Oregon's councils use consensus-based decision-making, with another quarter employing a modified consensus approach that allows for majority rule if consensus does not emerge. Further, councils are not always completely autonomous. Rickenbach (1999) identified three models of linkage:

- (1) Several adjacent local watershed councils are organisationally linked with group decision-making for ad hoc joint activities, but do not have a specific structure to facilitate such discussions.
- (2) A centralised watershed council covers several smaller river basins with the centralised council working with local basin-level councils to direct and foster activities within the basins.
- (3) Local watershed councils link together by convening a multi-basin council that serves as an organising hub for activities (a 'decentralised' model).

The difference between the latter two approaches is where the final decision-making authority is vested. The centralised watershed council model would approve local basin initiatives. In the decentralised model, the local watershed councils would approve any actions taken up by the multi-basin council.

## **STUDY AREA SELECTION**

Two study areas were selected based on the results of the survey of Rickenbach (1999), using three criteria and incorporating this study's focus on NIPF owners. First, potential study areas should include watersheds affected by the listing of Coho salmon. Second, they should include a predominance of forested watershed to capture and include NIPF owners. Third, the study sites should avoid other social science research on watershed councils. The two study areas (North Coast and South Coast) include seven watershed councils reflecting two of the organisational models mentioned above. The North Coast has a decentralised model, while the South Coast employs a more centralised model.

## **SEMI-STRUCTURED INTERVIEWS**

Within the two study areas, primary data collection was through semi-structured interviews with NIPF owners, watershed council members and public employees. The interview protocol elicited response in three areas: (1) concerns that NIPF owners have regarding land management, (2) NIPF owners' restoration activities, and (3) perceptions of and involvement with watershed councils and other

community organisations. Interviewees were identified through snowball sampling (as outlined by Patton 1990). In this process, initial interviewees – identified through attendance at watershed council meetings, participation in woodland owner events or recommendations by local informants – suggested others to talk to with both similar and different points of view. This process continued until new information or ideas were no longer forthcoming.

Over eight months, the lead author interviewed 37 people, including 21 NIPF owners, 10 watershed council members or staff other than owners, and six public employees. Of the NIPF owners, eight were members of watershed councils, four cooperated with watershed councils but were not members, and the remaining nine were not involved. The six agency employees represented state natural resource agencies and university extension. Interviews lasted from 20 minutes to 2 hours with a typical interview lasting approximately 45 minutes. Transcripts and field notes developed during and after interviews were the basis for data analysis.

Thematic analysis (following Boyatzis 1998) was completed by the lead author to analyse and interpret the data. Interviews and field notes were read to identify key themes that might be common to all interviews or some subset. Themes emerged from the data as opposed to using an *a priori* coding scheme. The text was analysed and coded for generalised opinions, statements, descriptions and actions that related closely to the interview protocol. Unlike some forms of coding that isolate specific words, pauses and utterances, the analysis focused on lengthier, general statements one to four sentences in length. Subsequent codes were developed that linked relationships between various previously defined codes to yield new insights. It is this second level of analysis that forms the basis for the results and discussions in this paper. Specifically, this second level of coding identified spatial relationships that no single interviewee captured, but were apparently essential for watershed council to restore and conserve biological diversity effectively. It was only when comments were taken in sum and placed in their local context that the spatial element became evident. The qualitative analysis software package, Ethnograph (Seidel 1998), was used to aid the analysis.

## RESULTS

The analysis of the interview data showed a cross-section of success and failure to effective planning and implementation of cross-boundary salmon recovery activities. Specifically, three scenarios emerged that encompassed the spatial intersections of ecological conservation and ownership. The first two scenarios (for the North Coast) illustrate when collaboratives are stymied by non-participation, while the third (South Coast) illustrates a collaborative capable of engaging local landowners in restoration activities. During the study, watershed councils were only just emerging as the central player in Oregon's recovery plan. New groups are always fraught with challenges, but their ability to cope with these challenges can often position groups for future success. However, the analysis and findings in this study are not predictive of the featured councils' future. The interest, as the three scenarios below describe, was the ways in which cross-boundary cooperation and spatial patterns were a purposeful part of participants' understanding. If the descriptions portray the councils as somewhat disorganised, it may simply be that this study captured a brief

point in time that was often tumultuous. Weekly and daily regulatory decisions, court rulings and competing political agendas abruptly changed the social, political, and economic landscape in which the councils operated.

In presenting the results, a simplified watershed map is used to distill the spatial relationship of each scenario. The watershed councils in the study cover thousands of hectares and encompass hundreds of NIPF owners, not to mention communities, public lands and myriad other owners and interests. The simplified watershed maps also allow the three scenarios to be illustrated clearly and against a consistent backdrop.

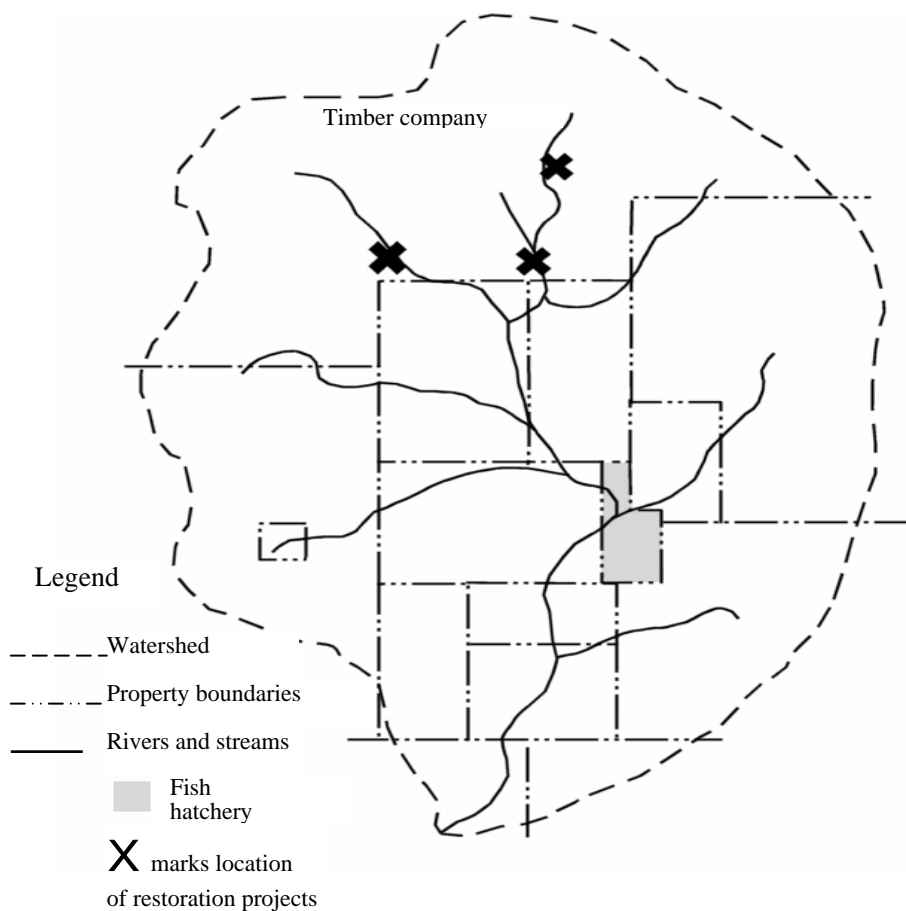
### **Scenario 1: Individual Owner Impacts on Cooperation**

Within any watershed, there may be individual ownerships that are essential to salmon recovery. If the owners of these properties participate in council activities, the significance may be unremarkable in that council members assume that these owners will participate and offer their land for restoration activities. However, if one of these owners does not participate, the council's ability to effectively plan, complete and monitor recovery projects on that property may be greatly limited. This lack of cooperation may also constrain recovery projects on lands upstream or downstream. The study provides the following illustration of this scenario through the non-participation of a public fish hatchery in the efforts of a local North Coast watershed council.

Greg<sup>3</sup> is an industrial forester employed by a large timber company that owns forestland in the upper reaches of the watershed (Figure 1). He is also a member of his local watershed council. On behalf of his company and with support of the council, he implemented several stream and habitat conservation projects on company land. For example, culverts were replaced to allow for adequate fish passage, and alcoves – off-stream areas of low current, where juvenile Coho salmon can rest and hide – were also installed. Despite these best intentions, the full benefit of these projects was in doubt. Greg sees problems downstream stemming from management of a state-run fish hatchery: '[Our] enhancement work above the hatchery is simply window-dressing. Few fish, except cutthroat and steelhead, are allowed to move above the hatchery to use the variety of projects [the company] has put in place.' Further conversation indicated that the hatchery is important because its management determines which fish are able to move above the hatchery to habitat upstream and when these releases occur.

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<sup>3</sup> All interviewees are identified using a pseudonym to maintain confidentiality of interview data.



**Figure 1.** Simplified watershed map illustrating first scenario

Greg and his fellow council members, despite their best efforts, were unable to gain representation by the hatchery or establish meaningful communication with the hatchery's staff<sup>4</sup>. Other interviewees in the watershed attributed this lack of participation to lack of interest, but those views were not verified because hatchery staff were not interviewed. Regardless, the council had no idea how the day-to-day management of the hatchery might affect their recovery projects upstream.

This illustration was chosen for the first scenario because it shows that open disagreement with or hostility towards conservation goals of individual owners may not constitute the rationale for non-participation and non-communication. While open disagreement or hostility would require substantial efforts to overcome, this situation was probably confounded more by lack of communication than by any malicious intent on the part of hatchery staff. Regardless of the reason, landscape recovery efforts depend heavily on communication within that landscape. Not

<sup>4</sup> Given the initial project focus on NIPF owners' participation, a representative of the hatchery was not interviewed as part of this project. More recent conversations (in August 2003) with hatchery staff indicate that since 2000 (shortly after this study concluded) they have been active in working with the watershed council.

knowing the hatchery's intentions limited the council's ability to plan and complete recovery efforts in the same way as a key owner who is hostile towards the conservation efforts. Under this situation, enhancement projects, like those completed by Greg, above the hatchery will have unknown impacts, since hatchery management may or may not take advantage of that work. Indeed, in setting priorities for projects, it would probably be more advantageous to work in other parts of the watershed until a relationship with the non-participating owner can be established at some level.

### **Scenario 2: Widespread Discontent and Lack of Cooperation**

Jerry, acting chair of a different local North Coast watershed council, faced an even more daunting challenge that illustrates the second scenario: a council that becomes disconnected from its land base (Figure 2). On paper, participation, in terms of numbers and representation of key interests, was typical of watershed councils and was sufficient to receive official recognition. In his interview, Jerry described a situation in which the nature of the local community was changing and the council reflected those changes. New residents, attracted to the area by the quality of life, were involved with the council, but tended to own smaller parcels or live in town (shaded area in Figure 2). The older owners, who lived outside of town and owned much of the riparian area, were starting to lose interest and were not attending council meetings. At least one of the older owners had clashed with the council on the direction the council should be headed. In responding to a (albeit leading) question, 'Is the watershed council headed toward a situation where the council is disconnected from the owners?' Jerry responded, 'Th[at] could be the case.'

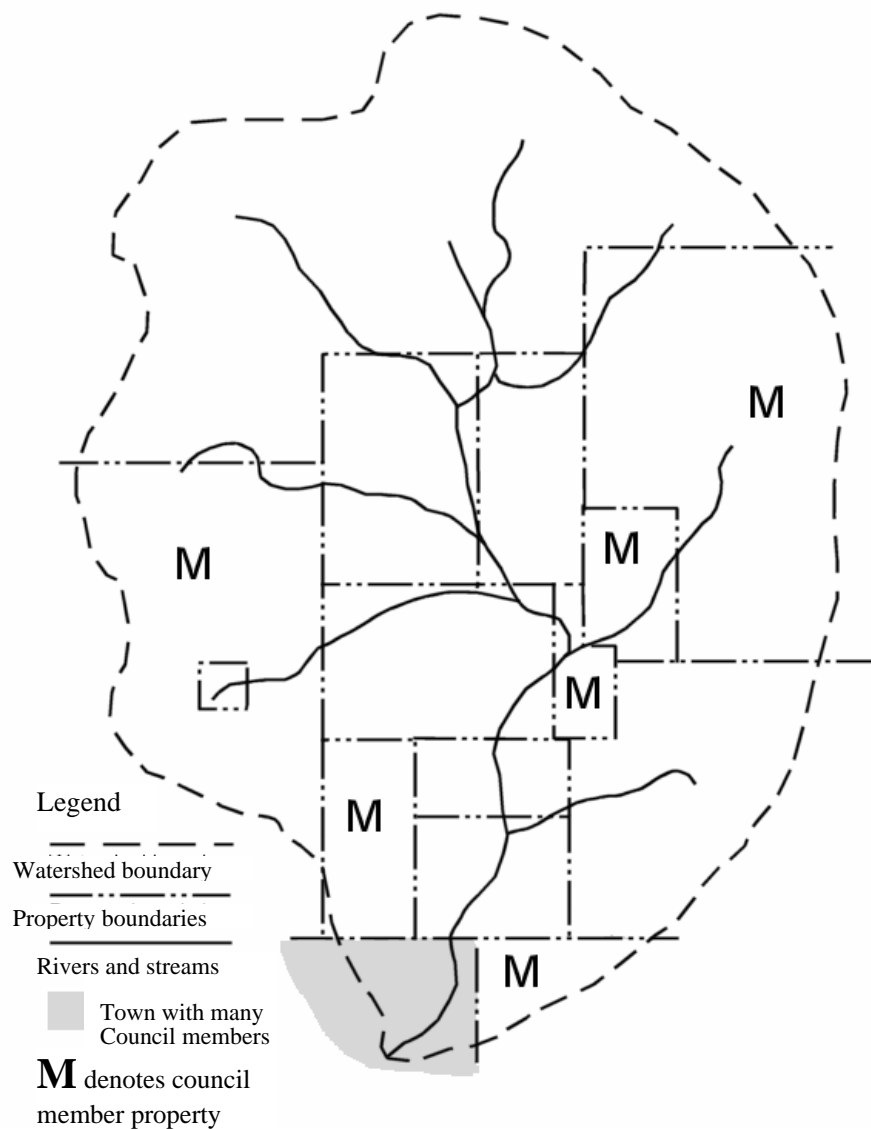
Jerry's response was supported by interviews with NIPF owners and other council members. Tom, a long-time landowner and farmer, was vehement in his denouncement of the watershed council. He had attended several meetings and felt his time had been wasted:

And so you go over there [to the watershed council meeting], and you sit and you listen to these people talk and Joe Mo comes in and gives an address . . . I talked to [non-council members] people here. We discuss our problem. We've got a problem. But we can't get them to go to the watershed council, because they go over there and have to sit and listen to all of this garbage.

Tom did eventually stop attending meetings.

Barbara, another long-time landowner and farmer, who was inactive with the council, had a similar perspective: 'There isn't much interaction unless you're unhappy about something. . . Unless someone has an axe to grind, it isn't interesting to farmers'. Again, Barbara was not opposed to the goals of salmon recovery and was otherwise active in the community. She undertook volunteer work for the Extension Service supporting non-watershed programs.





**Figure 2.** Simplified watershed map illustrating the second scenario

In assessing the overall status of this council, Joe, a state employee and participant in council activities, summed up his impression of the council as disjointed and ineffective. He later indicated that this is why the council has failed to attract owners as members or cooperators.

Oh, [the council is] spinning [its] wheels a lot. I don't think that there's a real clear consensus among the members on what the purpose of the watershed council is, even though we have a mission statement, and I think there's still a variety, a real variety, ... we have people that think what it should be or what they hope to get out of it or what they hope to put into it, and when I go to a meeting, I feel like we're not all together.

In this situation, the council, while having an active and legally representative core, had little or no access to ownerships for enhancement activities. Several factors might explain the disconnection between the council and non-participating owners. Several interviewees indicated that demographically and culturally the local community was diverging. Most forest and agricultural land was owned by those who held traditional and utilitarian values and were often suspicious of government-sponsored or supported programs that allows outsiders a say. Newer residents both in town and owning rural lands for non-commodity reasons did not share these perceptions and often eagerly engaged the watershed council. In this situation, the newer residents tended to drive the watershed council's direction, but could provide little tangible action because the land in need of restoration activity was held primarily by the more traditional, non-participating owners.

### **Scenario 3: Collaboration Resulting in Cooperation**

Howard, a contractor, rancher, and owner of 400 ha with some stream frontage, was chair of his South Coast council and offered a scenario of effective cross-boundary cooperation (Figure 3). On the surface, Howard's council might appear the least promising of those in the study. As he and the local watershed council coordinator both explained, attendance at the meetings was low: three to five people each month, including two who live outside the watershed. This was the lowest of any council in the study. Nevertheless, the council protected the entire privately owned (shaded properties) length of the stream. Fencing is used to keep livestock out the stream which reduces sediment and nutrient levels and protects streamside vegetation. As Howard tells it:

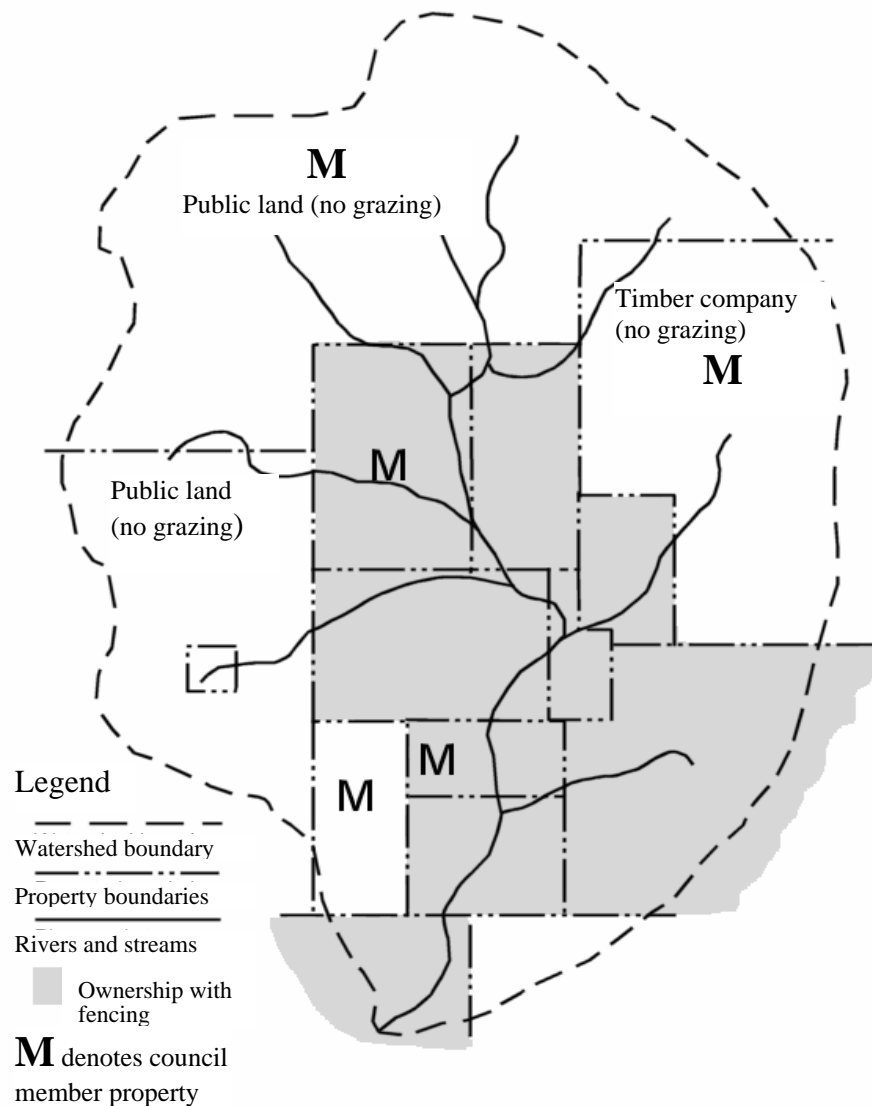
Oh, gosh. We've put in a couple miles here on our place. Well, we've got a little bit left to do on this side of the river, but the other side, I think there's two-and-a-half miles of frontage, and it's all done, and most of this side is. And then I know [neighbour] did his and [another neighbour] did his, and – most of the – I think just about all of the lower river where there's livestock is pretty much fenced, actually . . . In fact, I don't know where it isn't.

The number of landowners involved in the fencing project was 10-12, but the council was able to enlist effectively all the landowners, most of whom were non-members, who were needed to complete the project.

Fellow council members Bruce and Lee noted that the council often relied on their knowledge of neighbours and personal relationships to select watershed council projects. In this case, the council decided that fencing needed to be done and that they could likely enlist their neighbours. Funds were available from the state and labour would be provided by a program to hire local unemployed fishermen. While the council coordinator organised the external resources (grants, equipment, labour), the council members talked to their neighbours and friends along the stream. The council members were able to recruit other owners to cooperate.

This scenario illustrates that to bring about change over multiple ownerships, participation must extend beyond the council membership by recruiting the participation of others in the watershed. Members who either own land important to the council, or simply know people who do, can use their relationships to foster participation by others. Having the external resources in place (i.e. the watershed council coordinator and his efforts) also made it easy for landowners to join in. They

were expected to allow others on their land and, in some cases, lend a hand, rather than to discuss, plan and seek funds, for which they have little tolerance (Rickenbach and Reed 2002).



**Figure 3.** Simplified watershed map illustrating the third scenario

## DISCUSSION

The old adage, 'The world is run by those who show up' applies to watershed councils. By law, Oregon's watershed councils are locally-organised collaboratives that represent diverse interests within the watershed. As mentioned previously, a typical council might include 10-20 members and represent local government,

environmental organisations, forest industry, state and federal agencies, landowners, agricultural producers and K-12 education. Those who showed up at monthly meetings provided the mix of opinions and expertise brought to council activities on-the-ground. Members are the core for collaborative planning. They set priorities, approve direction in grant proposals, and may have a hand in implementing council activities. If they are owners, they may offer their properties as potential sites for council projects.

Yet, on privately owned landscapes, watershed councils or any organised effort must extend beyond their membership to achieve the protection of biological diversity such as endangered species recovery or the eradication of invasive species. Organisations that embrace a collaborative framework with broad stakeholder representation must ensure access to the ecologically important ownerships essential to their mission. This might take the form of membership, but membership is constrained by group dynamics and workable processes. Typical watersheds in Western Oregon could have hundreds of owners that would make consensus-based processes infeasible. Nonetheless, access to the landscape should be viewed as a prerequisite for protection schemes that affect large numbers of NIPF owners. Failure to gain such access, as demonstrated above, may reduce, nullify or prevent restoration and conservation projects from occurring in the areas most in need. Such schemes will need to investigate the potential for cross-boundary cooperation because ecological boundaries often stand in stark contrast to ownership patterns.

Differing contexts among the watershed councils in the scenarios clearly influenced what emerged as potentially workable solutions. These were not simply replicates, but organic adaptation of a similar policy applied in a locally relevant way. On the North Coast (the first two scenarios), the two councils were part of a decentralised model and shared the resources of a larger coordinating committee which sought to share information and some resources between the various councils found in the area. This central committee had no authority to act without the express consent of the local councils. The South Coast council was embedded in a centralised watershed council model. The larger council sought funds and assisted local councils in meeting their goals. The larger council also had broader representation and worked closely with traditional land ownership interests such as the Soil and Water Conservation District. (The North Coast Council had no such linkages.) Indeed, along the South Coast, the local basin watershed councils were more recognisable as local landowner associations than broadly representative groups. This was, in part, due to the limited population found in the watershed, but also in deference to the larger council which included many of the broader interests.

Because cross-boundary cooperation depends on the willingness of private landowners to participate, the South Coast approach allowed more local voices, landowners and otherwise, to formulate their ideas and then present them to the larger council for technical and financial support. The North Coast approach placed much of the burden on the local groups to both formulate their ideas and seek their own technical and financial support. In many ways this left the North Coast councils at a disadvantage in competing against South Coast councils in that each North Coast council had independent proposals, while the South Coast could bundle different local basin councils' ideas together in a single proposal with greater impacts. This is not to suggest that a simple 'model change' in the North would have led to different scenarios than those posed above. The interviews along the North

Coast always conveyed a sense of distrust of the watershed councils and the state's approach to salmon recovery that were not as evident on the South Coast. The attribution of these differences is beyond the scope of this paper, but the organisation did make communication and cross-boundary cooperation easier in the South Coast's approach vis-à-vis that found along the North Coast.

## CONCLUSIONS

The need to protect and manage for biological diversity, particularly on NIPFs, can be expected to increase as competing values and uses challenge resource managers and landowners. It is also likely that voluntary stakeholder-driven processes, such as collaboratives, will be preferred over regulatory solutions. In these situations, the ultimate effectiveness will be tied to ability of collaboratives to foster action by individual owners and cross-boundary cooperation by many owners. It is also clear that these collaboratives will need help. Financial incentives may tip the balance towards NIPF owner involvement. Building relationships with landowner organisations may also foster opportunities among landowners predisposed toward active management and cooperation. The threat of regulation may also improve receptivity of otherwise unacceptable infringements upon private property rights.

Needless to say, it is unlikely that all landowners will participate. Different life stages, interests and experiences colour what landowners might and will do. Hence, collaborative efforts that seek to protect biological diversity must coordinate with existing landowner opportunities to foster management. This may include working with consulting natural resource professionals and loggers to adapt management practices on-the-ground as opposed to solely focusing on the owners.

All three scenarios examined here suggest a need for continued study and reflection on representation. Stakeholder processes are often seen as interest-based. On more predominately public-owned landscapes where the agenda is primarily public land management, ensuring access to specific private ownerships may be a minor concern. However, on privately-owned landscapes, access to private ownerships is essential for conservation of biological diversity. Are there stakeholder processes that maintain broad interest group representation and substantial geographical diversity? Oregon's model was and still is primarily interest-based with limited regard for ownership patterns except that different ownership categories and interests exist. Processes that are more inclusive of ownership and land tenure patterns may do better at fostering participation by individuals and by groups of landowners. The structure of such processes is left for future work, but including some degree of geographical representation seems appropriate.

This foray into the need for collaboratives to address cross-boundary cooperation suggests that specific places on the landscape and who owns or controls them are important for those seeking to maintain biological diversity. In looking back, there is much this study might have been carried out differently to represent better the social landscape in which watershed councils function. Based on this experience, those with a keen interest in addressing similar concerns (such as species recovery, fire suppression, and ecological restoration of historic landscapes), either through research or in practice, should pay close attention to the ownership patterns and the

motivations and intentions that guide the land's use. Creating institutions, such as watershed councils, with political legitimacy to make decision will not be enough. These institutions will also need to be spatially aware in recruiting participants and cooperators that can shape the landscape.

## ACKNOWLEDGEMENTS

This study was made possible with funds from Oregon State University's Department of Forest Resources Forestry Extension Program, the Starker Chair in Private and Family Forestry; and *The Renewable Resources Extension Act*.

## REFERENCES

- Barten, P.K., Damery, D., Catanzaro, P., Fish, J., Campbell, S., Fabos, A. and Fish, L. (2001), 'Massachusetts family forests: Birth of a landowner cooperative', *Journal of Forestry*, 99(3):23-30.
- Bolen, R.W. (1996), 'The Western Upper Peninsula Forest Improvement District', in M.J. Baughman (ed.), *Symposium on Non-industrial Private Forests: Learning from the Past, Prospects for the Future*, Minnesota Extension Service, St. Paul, MN, pp. 411-425.
- Boyatzis, R.E. (1998), *Transforming Qualitative Information: Thematic Analysis and Code Development*, Sage Publications, Thousand Oaks, CA.
- Brunson, M.W., Yarrow, D.T., Roberts, S.D., Guynn, D.C. Jr. and Kuhns, M.R. (1996), 'Non-industrial private forest owners and ecosystem management: Can they work together?', *Journal of Forestry*, 94(6):14-21.
- Brunson, M. W. (1998), 'Social dimensions of boundaries: Balancing cooperation and self-interest' in R.L. Knight and P.B. Landres (eds), *Stewardship Across Boundaries*, Island Press, Washington, D.C.
- Campbell, S.M. and Kittredge, D.B. (1996), 'Ecosystem-based management on multiple NIPF ownerships', *Journal of Forestry*, 94(2):24-29.
- Cheng, A.S., Kruger, L.E. and Daniels, S.E. (2003), 'Place' as an integrating concept in natural resource politics: Propositions for a social science research agenda', *Society and Natural Resources*, 16(2):87-104.
- Egan, A.F. and Jones, S. (1993), 'Do landowner practices reflect beliefs? Implications of an extension-research partnership' *Journal of Forestry*, 91(10):39-45.
- Fries, C., Linden, G. and Nillius, E. (1998), 'The stream model for ecological landscape planning in non-industrial private forestry', *Scandinavian Journal of Forest Research*, 13(3):370-378.
- Jumppanen, J., Kurttila, M., Pukkala, T. and Uuttera, J. (2003), 'Spatial harvest scheduling approach for areas involving multiple ownership', *Forest Policy and Economics*, 5:27-38.
- Kittredge, D.B. (2003), 'Private forestland owners in Sweden: Large-scale cooperation in action', *Journal of Forestry*, 101(2):41-46.
- Klosowski, R., Stevens, T., Kittredge, D.B. and Dennis, D. (2001), 'Economic incentives for coordinated management of forest lands: a case study of southern New England', *Forest Policy and Economics*, 2:29-38.
- Knight, R. L. and P. B. Landres (eds), (1998), *Stewardship Across Boundaries*, Island Press, Washington, D.C.
- Kurttila, M., Uuttera, J., Mykra, S., Kurki, S. and Pukkala, T. (2002), 'Decreasing the fragmentation of old forests in landscapes involving multiple ownership in Finland: Economic, social, and ecological consequences', *Forest Ecology and Management*, 166:69-84.
- National Research Council, (1998), *Forested Landscapes in Perspective: Prospects and Opportunities for Sustainable Management of America's Nonfederal Forests*, National Academy Press, Washington, DC.

- Patton, M.Q. (1990), *Qualitative Evaluation and Research Methods*, 2nd edn, Sage Publications, Newbury Park, CA.
- Rickenbach, M.G. (1999), 'Watershed Councils and Woodland Owners: The Oregon Experience', Ph.D. Thesis, Department of Forest Resources, Oregon State University, Corvallis, OR.
- Rickenbach, M.G., Guries, R.P. and Schmoldt, D.L. (in review), 'Membership matters: Comparing members and non-members of NIPF owner organisations in southwest Wisconsin, USA', *Forest Policy and Economics*.
- Rickenbach, M.G., Kittredge, D.B., Dennis, D. and Stevens, T. (1998), 'Ecosystem management: Capturing the concept for woodland owners', *Journal of Forestry*, 96(4):18-24.
- Rickenbach, M.G. and Reed, A.S. (2002), 'Cross-boundary cooperation in a watershed context: The sentiments of private forest landowners', *Environmental Management*, 30(4):584-594.
- Seidel, J. (1998), *The Ethnograph v5.0: A User's Guide*, Qualis Research Associates, Amherst, MA.
- Smith, W.B., Vissage, J.S., Darr, D.R. and Sheffield, R.M. (2001), Forest Resources of the United States, 1997, General Technical Bulletin NC-219, USDA Forest Service North Central Research Station St. Paul, MN, 190 pp.
- State of Oregon, (1997), *The Oregon Plan: Coastal Salmon Restoration Initiative*, State of Oregon, Salem, OR.
- State of Oregon, (1998), *The Oregon Plan for Salmon and Watersheds: Steelhead Supplement*, State of Oregon, Salem, OR.
- Wondolleck, J.M. and Yaffee, S.L. (2000), *Making Collaboration Work: Lessons from Innovation in Natural Resource Management*, Island Press, New York.
- Yaffee, S.L. (1998), 'Cooperation: A strategy for achieving stewardship across boundaries', in R.L. Knight and P.B. Landres (eds), *Stewardship Across Boundaries*, Island Press, Washington, DC.